

Present distribution and population status of the Great Bustard, *Otis tarda* Linnaeus¹

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(With three maps)

In 1969 Dr Sálím Ali drew attention to the rapid reduction in numbers of the population of the Great Indian Bustard (*Choriotis nigriceps*). In his report made at the XIth Technical Meeting of the International Union for Conservation of Nature and Natural Resources held in Delhi he expressed his anxiety about the future of this valuable species. Sálím Ali is quite right in considering direct persecution by hunters and the disappearance of its main habitats to be the main causes of the disastrous reduction in the Indian Bustard population.

The report was quite a timely one, as there are reasons to be anxious not only about the future of the Great Indian Bustard, but about the future of many other species of European, Asian and African bustards as well. In this connexion I should like to present some information concerning the present distribution and numbers of the Euroasiatic Great Bustard (*Otis tarda*), whose population tends to decrease.

The bustard is a bird of open landscapes, mostly inhabiting steppe and forest-steppe. In semi-desert bustards are found rather seldom, and are not numerous there. One may suppose that the northern limit of distribution of the European Bustard *Otis tarda tarda* Linnaeus lay on the southern boundary of the forest zone in the pre-agricultural period. In forest-steppe, strips of Bustard range protruded far to the north, while in some patches of insular forest-steppe (e.g. in the Middle Volga and in the Ural Foreland² areas) it formed separate patches. Due to forest felling and the extension of the areas under pasture, hay meadows, and the plough, the bustard moved to the north into the forest zone. Unfortunately, one cannot find in any publication exact data concerning the time and rate of extension of the bustard's range.

In Western and Central Europe this process seems to have taken place somewhat earlier than in the European part of the USSR. In western and central Europe forests had been cut and replaced by vast areas of heathland as early as in the Middle Ages. According to Gesner's evidence (1555), in England bustards appeared in the 16th century, pro-

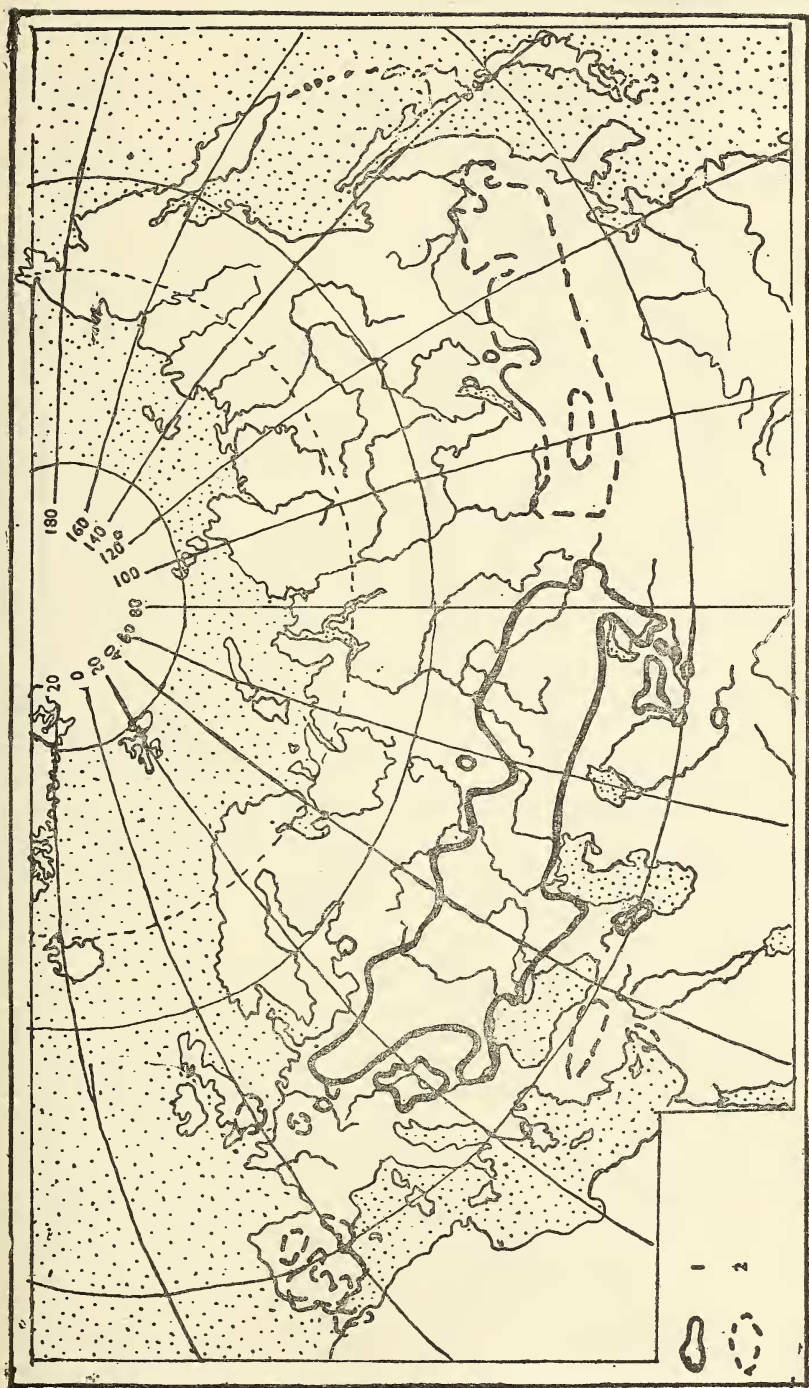
¹ Received April 1973.

² The Ural Foreland is the low-lying land (not foothills) west of the Urals.

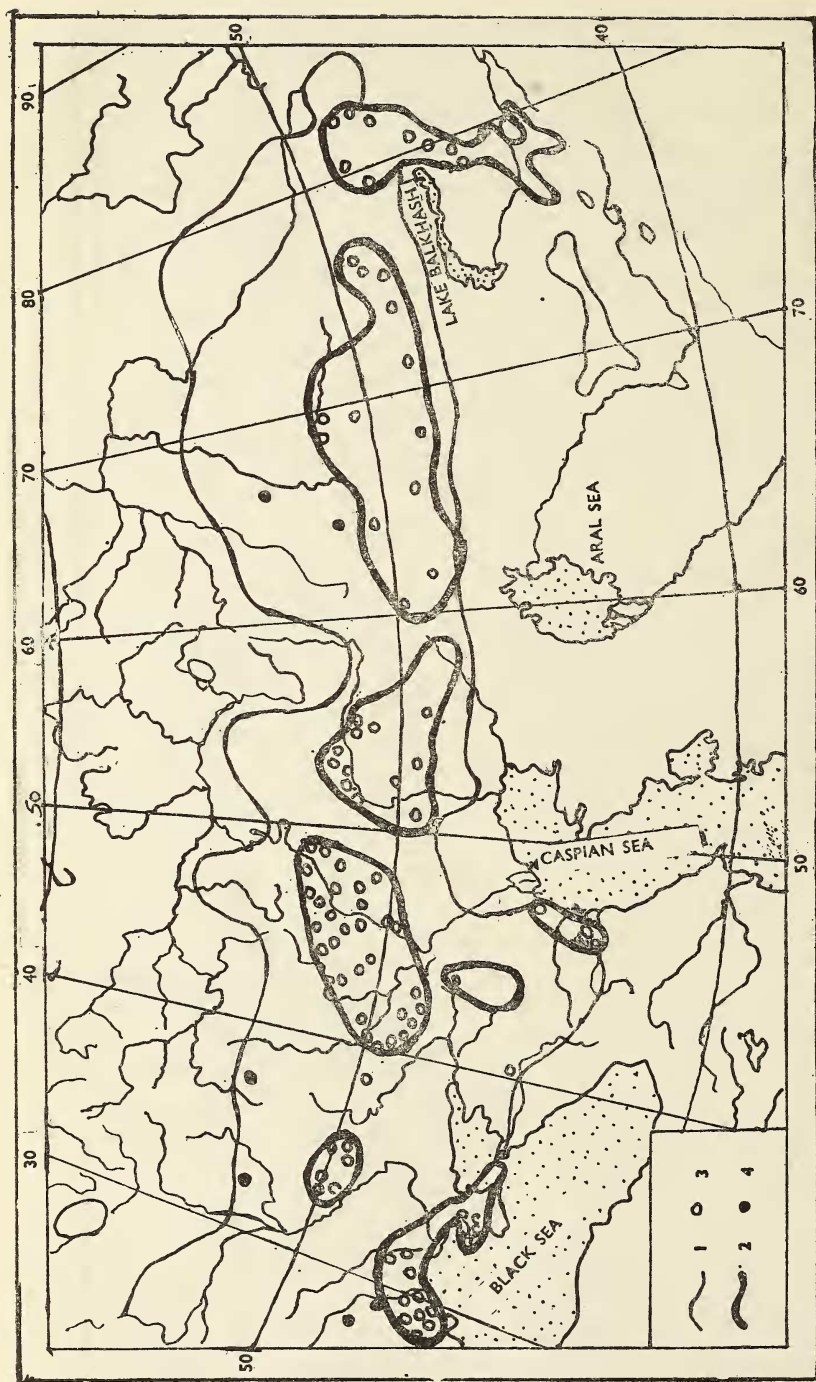
bably due to the development of sheep breeding and the rapid extension of pasture. In the German-Polish lowlands bustards appeared not later than at the beginning of the 18th century, since as early as in 1751 they were found throughout the Potsdam area, though they had not been found there before (Schalow 1919). Probably at the same period the bustard appeared in the Vistula regions of Poland (Linnaeus 1758), and then in the adjoining areas of Byelorussia, around Grodno and Brest. In the 18th century bustards inhabited the eastern part of the Baltic Hills, including the Kaliningrad region (Tischler 1941), and then passed to the southern, most densely populated part of Latvia (Fischer 1778). Throughout the territory bustards inhabited mainly dry watersheds which had previously been under mixed pine-broadleaved forests and where heathlands, which are very favourable for bustards, had appeared after felling. In France, bustards were breeding in Champagne at that time, in the regions that had formerly been under broadleaved forest, predominantly oak.

The end of the 18th century is considered to be the period of maximum extension of the range of the bustard in Europe and probably the period when its population was the highest. At that time bustards inhabited many areas of the Russian Plain which had been under forest not so long before. They had their breeding sites on the territories of Minsk, Gomel, Chernigov, Bryansk and Orel regions, as well as in some areas of Ryazan and Gorki regions, in the Chuvash and the Tatar Autonomous Republics and even in the western part of the Sverdlovsk region (Kirikov 1959, 1966). It is interesting to note that the bustard area did not extend behind the Urals in that period. In West Siberia bustards never bred north of the forest-steppe zone, because farming only penetrated along the river valleys, and did not change the landscape fundamentally. In Eastern Asia bustards began to inhabit the forest zone much later. In Map 1, the borders of the breeding area of the species in the period of its maximum extension are outlined. The borders cannot be assigned to any definite period, as the extension of the species area in the east coincided with its reduction in the west.

The way in which the landscape was changed by man, causing an increase in numbers and affecting the distribution of bustards, may be illustrated by data concerning several areas of the Russian Plain situated in different natural zones. It is seen from Table 1 that as early as in the first half of the 18th century open landscapes occupied more than 50% of the whole forest-steppe area. In the area of broadleaved and coniferous and broadleaved forest such conditions were established only in the middle of the 19th century (Tsvetkov 1957). The decrease of forest areas and their replacement by agricultural lands appeared to be favourable for bustards. They began breeding in the fields, especially in those which alternated with fallow lands and pastures.



Map 1. Distribution of the Great Bustard at the time of its maximal expansion
1. Exact boundaries; 2. Approximate boundaries.



Map 2. Past and present distribution of *Otis tarda* in the USSR.
 1. Area at time of maximal expansion.
 2. Present distribution.
 3. Specific breeding areas.
 4. Isolated breeding areas.

TABLE 1

LAND CULTIVATION IN THE EUROPEAN PART OF THE USSR IN THE 18TH AND 19TH CENTURIES (INCREASE IN THE PERCENTAGE OF AREA UNDER OPEN LANDSCAPES : ARABLE LANDS, HAY MEADOWS, AND PASTURES)

Region	Natural conditions	1696	1725	1795	1861	1887
Saratov, Ulyanovsk, and Kuibyshev	Steppe and forest-steppe	70.8	71.5	73.2	—	77.2
Kharkov	Forest-steppe and steppe	40.7	49.5	69.3	75.5	83.7
Tambov	Forest-steppe	49.5	53.4	63.1	71.5	77.7
Volynsk (W. Ukraine)	Broadleaved forests	—	—	37.4	45.3	65.1
Grodno	Spruce-broadleaved forest	—	—	37.8	50.3	63.6
South Latvia	Broadleaved-coniferous forests	—	19.1	21.2	33.0	60.4

In the second half of the 18th century the way in which the landscape was changed by man was somewhat different. The expansion of the area under arable land was followed by the reduction of the area under natural and semi-natural grass communities, i.e. steppes and dry meadows. This process was extremely intensive at the end of the 19th century (Table 2), its consequences being unfavourable for bustards, especially in the period of reproduction.

TABLE 2

CHANGE IN THE AREA UNDER NATURAL AND SEMINATURAL STEPPE LANDS IN THE 18TH AND 19TH CENTURIES (REDUCTION OF THE PERCENTAGE OF AREA UNDER PASTURES AND HAY MEADOWS ON ACCOUNT OF INCREASE OF ARABLE LAND)

Region	Natural conditions	1696	1725	1795	1861	1887
Tambov	Forest-steppe	31.6	30.1	25.5	13.5	13.8
Kharkov	Forest-steppe and steppe	21.7	23.2	27.3	29.8	12.6
Saratov, Ulyanovsk, Kuibyshev	Steppe and forest-steppe	62.6	54.7	36.8	24.6	23.9

TABLE 3

HISTORICAL CHANGES IN DISTRIBUTION OF THE EUROPEAN GREAT BUSTARD
(*Otis tarda tarda* L.) IN VARIOUS ZONAL LANDSCAPES IN THE USSR

Regions, Territories, Republics	Sage brush and bunch- grass steppe	Bunch-grass steppe	Herb and bunch-grass steppe	Forest steppe	Broadleaved forest	Coniferous and Broad- leaved forest	Broadleaved and Coni- ferous forest
Volgograd*, Aktyubinsk, Uralsk, Karaganda, Semipalatinsk	xxx	xxx	.	.	.	.	.
Odessa, Crimea, Saratov	.	xxx	xxx	.	.	.	.
Kalmykija, Turgay, Taldy-Kurgan	xx	xx	.	.	.	.	.
Daghestan, Checheno-Ingushetia, Kustanay	xx	xx	xx	.	.	.	.
Nikolayev, Rostov, Krasnodar, Orenburg, Tselinograd†	.	xx	xx	.	.	.	.
Poltava, Voronezh	.	.	xx	xx	.	.	.
Belgorod	.	.	.	xx	.	.	.
Kherson, Dniepropetrovsk, Alma-Ata	.	x	x	.	.	.	.
Moldavia, North Kazakhstan	.	.	x	x	.	.	.
Kursk, Lipetsk	.	.	.	x	.	.	.
Azerbaijan, Uzbekistan, Turk- menia	-	-	.	.	.	.	.
Zaporozhye, Donetsk‡, Pavlodar Altai	.	-	-	.	.	.	.
Kuibyshev, Chelyabinsk, Omsk, Novosibirsk	.	.	-	-	.	.	.
Kharkov	.	.	-	-	-	.	.
Tula, Orel, Chernigov, Cherkassy	.	.	.	-	-	.	.
Brest, Gomel, Chernovtsy	.	.	.	.	-	.	.
Lvov, Tatar	.	.	.	-	-	.	.
Grodno, Minsk, Kaliningrad, Latvia	.	.	.	.	.	-	-

xxx Breeding in large numbers

xx Breeding in small numbers every year

x Rare breeding pairs, not every year

- Disappeared in the 20th century

-- Disappeared by the end of the 19th century

* Formerly Stalingrad, † Formerly Akmolinsk, ‡ Formerly Stalino.

In the 19th century the numbers of bustards began to decline markedly. In many localities the birds stopped breeding, and a number of territories, one after another, were excluded from their vast area. This happened first in the areas where bustards had appeared comparatively recently, i.e. within the forest zone. After 1838 they were not found in England (Niethammer 1942), and shortly later in France either. In the sixties bustards disappeared from the Kaliningrad region, and by the end of the century from some other regions of the European part of the USSR (Menzbier 1893). At present the range of this subspecies has greatly decreased everywhere. The succession of its reduction within the USSR is shown in Table 3. First (as early as in the 19th century) bustards ceased breeding in the areas situated in the subzone of mixed forest, then (at the beginning of the 20th century) in the subzone of broadleaved forest. In forest-steppe they remained longer, but in the first half of the 20th century they disappeared from most of the forest-steppe areas too. In mountain steppes there are almost no bustard either. Only in some plain steppe areas do considerable numbers of bustard continue breeding.

In order to ascertain the present distribution and the numbers of bustard in the USSR, a special inquiry was conducted in 1971 in which Republican and Regional Game Management Administrations, Hunters' Associations and ornithologists took part. The information obtained by means of the inquiry is summarized in Table 4. The accuracy of some data is not very high and the indications of numbers should be considered as approximate. Nevertheless, these data give us a clear indication of the numbers and distribution of bustards in the USSR. At present, the total number of breeding pairs of the European subspecies on the territory of the USSR is between 2200 and 2300, and that of the Eastern subspecies (according to much less accurate data) about 500 or 600 pairs (Table 5).

The bustard range does not make a solid unit now. Areas where the birds are still breeding alternate with localities where they are not found at all (Map 2). Within the USSR several geographical populations of the European Bustard occupying isolated areas may be singled out (Table 6). (a) The Black Sea population whose main part inhabits the Crimea and Odessa regions. The birds breeding in the Poltava region, though their habitat is separated from the main area, also belong to this population. (b) The Volga-Don population which is made up of the birds breeding on the Middle and Lower Volga (Saratov and Volgograd regions) and in the middle part of the Don (Voronezh and Rostov regions). (c) Formerly the Caucasus Foreland population occupied a big area and was rather numerous. Now it is represented only by small groups of birds inhabiting rather small areas on this vast plain: the lower reaches of the Kuban, the area of the Manych-Gudilo Lake, North Caspian Lowland from Kalmykija to Daghestan and the Ergeny Hills,

TABLE 4

PRESENT DISTRIBUTION AND NUMBERS OF *O. t. tarda* IN THE USSR

Regions, Territories, Republics	Number of districts where bustards are breeding	Number of breeding pairs	Number of birds (ad. + subad.)
1	2	3	4
Odessa reg. ..	9	(150)*	350—400
Moldavian ASSR ..	3	3	—
Nikolayev reg. ..	8	(50)	—
Kherson reg. ..	1	rare birds, not regularly	—
Crimea reg. ..	12	500	—
Dniepropetrovsk reg. ..	2	rare birds	—
Poltava reg. ..	6	(30)	—
Bryansk reg. ..	1	1	—
Lipetsk reg. ..	1	rare birds, not regularly	—
Belgorod reg. ..	1	10	59
Voronezh reg. ..	4	(40)	130
Rostov reg. ..	7	(25)	—
Saratov reg. ..	18	(390)	1187
Volgograd reg. ..	8	112	—
Kalmyk ASSR ..	2	(30)	—
Daghestan ASSR ..	2	(25)	—
Checheno-Ingushetia ASSR ..	1	10	—
Stavropol Territory ..	2	(10)	40
Krasnodar Territory ..	1	(8)	16
Orenburg reg. ..	6	(40)	100
Uralsk reg. ..	7	more than (40)	—
Guryev reg. ..	2	(20)	—
Aktyubinsk reg. ..	4	(80)	200
Turgay reg. ..	1	50	—
Kustanay reg. ..	1	20	—
North Kazakhstan reg. ..	3	rare birds, not regularly	—
Kokchetav reg. ..	2	rare birds	—
Tselinograd reg. ..	4	(50)	—
Karaganda reg. ..	6	(250)	780, including young stock
Taldy-Kurgan reg. ..	4	more than 50	—
Alma-Ata reg. ..	1	rare birds	—
Semipalatinsk reg. ..	6	270	—
East Kazakhstan reg. ..	1	(20)	—
TOTALS ..	137	(2300)	(7000)

* The number of breeding couples given in brackets is defined approximately, by calculation.

TABLE 5

PRESENT DISTRIBUTION AND NUMBERS OF *O. t. dybowskii* IN THE USSR

Republics, Territories and Regions		Number of districts where bustards are breeding	Approximate number of breeding pairs	Approximate number of birds (ad. + subad.)
Krasnoyarsk Territory	..	1	rare birds	—
Altai Territory	..	1	rare birds	—
Tuva ASSR	..	5	200	600
Buryat ASSR	..	5	250	750
Chita reg.	..	6	100	300
		TOTALS	18	550
				1650

TABLE 6

APPROXIMATE NUMBERS OF THE MAIN GEOGRAPHICAL BUSTARD-POPULATIONS IN THE USSR (1971)

Geographical populations		Number of breeding pairs	Number of birds (ad. + subad.)
Black Sea	..	735	2250
North Caucasus	..	90	300
Volga-Don	..	575	1750
West Kazakhstan	..	120	400
Central Kazakhstan	..	430	1250
East Kazakhstan	..	350	1050
Tuva	..	200	600
Trans-Baikal	..	350	1050

(d) The West Kazakhstan population which inhabits the Urals region and the adjoining areas of Orenburg and Aktyubinsk regions. (e) The Central Kazakhstan population occupies a vast territory from the Turgay valley to the eastern borders of Kazakh small-hills area (i.e. 65°-70°E.). Recently the density, as well as the total number, of this population has declined. Its number is somewhat higher only in Karaganda region. (f) The East Kazakhstan population inhabits the steppes of Semipalatinsk region and the foothills of Tarbagatay and Dzungarsky Alatau.

The range of Eastern Bustard subspecies (*O. tarda dybowskii* Taczanowski) extends mainly outside the Soviet Union, in Mongolia and China. It extends from the depression of Great Lakes in the west of Mongolia to North Manchuria in the east (Kozlova 1930 ; Tugarinov 1929, 1932 ; Bannikov & Skalon 1948 ; Cheng 1947). The landscapes of true steppes (*Aneurolepidium*, feather-grass, and shrub steppes) prevail on this vast territory, considerable areas being also under meadow and mountain steppes. Within the USSR there are only some strips of the range of this subspecies (Map 3). Therefore the name East Siberian Bustard, which is sometimes used, is not a proper one. It would be more correct to call it the East Asian or Central Asian Bustard.

The extreme western area of its distribution in the USSR is Tuva, where bustard is breeding in the steppes of Ubsa Nor and Tuva depressions. Not so long ago it was found in Minusinsk forest-steppe as well. Farther to the east, bustard inhabits the steppe areas of the Selenga river basin. From there it moves to the Vitim uplands,¹ where it is breeding in very small numbers in lake depressions (Arakhley and Eravnin lakes) and in the meadows among larch taiga. At one time bustard was found even farther to the north (in the valley of the Barguzin river and in Olkhon² district, on the western coast of Lake Baikal ; now they are not found there. Another bustard area in the USSR is Dauria.³ Meadow steppes (*Aneurolepidium*, tansy, and feather-grass ones) are typical for this area, as they are for the Selenga lowland. The number of populations mentioned is not big (Table 5) and tends to be reduced. However our data concern only a small portion of the Eastern subspecies area, so we cannot make any conclusion about the total number of its population.

Not so long ago bustards were breeding in the USSR in two more areas of the Far East : in the middle part of the Amur river, in the plain between the mouth of the Zeya river and the mountain range Malyj Khingan, and somewhat further south in the lowlands near Khanka Lake (100 km north of Vladivostok). Both these regions are situated in the area of oak-forests and are separated from the main bustard area by a wide belt of broadleaved forests. Bustard could inhabit these areas only after they had been deforested and cultivated, so that the boundaries of the main area moved to the north and to the east. It should be mentioned that L. Schrenk (1861), who was travelling in the middle part of the Amur in 1854-56, wrote in his account that no bustards were found there. So it is clear that they colonized the Amur territory only at the end of the 19th century. In the first half of the 20th century bustards bred regularly in four districts of the Amur region (Barancheev 1954),

¹ The Vitim river rises north of Chita and joins the Lena at Vitim city.

² An island in Lake Baikal.

³ SE. Chita.

